

AVIATION WEEK

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SEPTEMBER 5, 1949



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AVIATION PRODUCTS

The New Defense Department — A Staff Report

The recently signed Unification Act leaves the future role of the Secretary for Air a question mark. It will be decided by the man who fills the post. On the one hand, the act gives the Secretary of Defense a firm hold over the three services, tightening his "direction, authority and control."

On the other hand, the Secretary for Air will act as the two other service secretaries and the members of the Joint Chiefs of Staff are explicitly authorized to bypass the Secretary of Defense and lay their cases before members of Congress as they see fit.

The act leaves to the Secretary for Air whether to push the Air Force's case in Congress, or whether to assist in the Secretary of Defense when he is at odds with USAF's program.

This is as it has been. Last year, Secretary for Air Stuart Symington challenged the late Secretary of Defense James Forrestal on the "biggest USAF issue, but this year he stepped in the shoes of President Truman and Secretary of Defense Johnson for a 45-group USAF. Symington's refusal to endorse even the 35-group Air Force, approved by the House, pulled the rug from under secretaries who were eager to support it—but felt they could act as the face of Symington's position that the two added groups were not needed for the national defense. Secretaries shrank from telling their too-overlooked constituents that they voted to pour \$500 million out of the federal treasury for an unnecessary defense program.

The unification measure, which puts Secretary Louis Johnson on the spot to defend his promise that it would save the way for an annual saving of from \$1 billion to \$1.5 billion in the military budget through elimination of overlapping and duplicative activities among the services, was viewed through the House only after dignified representatives walked it down with few restrictions on Johnson's pleas.

The Senate unanimously approved the measure. In addition to authorization for the service secretaries to appeal directly to Congress, the House restrictions were:

- The provision limiting the secretary from making changes in the combination functions assigned to the services is given added emphasis over the 1947 Unification Act by the clause that "assigned missions" shall not be transferred, reassigned, subdivided or consolidated.
- Prohibition of inter-service transfer of military personnel (limited leave) is given to detail military personnel to other services.
- The secretary is required to notify the House and Senate Armed Services Committees on any major changes in organization and activities he intends making, before action is taken. In addition, he is required to report quarterly to Congress on savings resulting from the elimination of duplicating and overlapping activities.
- The role of the Joint Chiefs of Staff as advisors to the President and National Security Council on strategic matters is specified not as detail.

But despite the restrictions, seven House members—five of them veteran Naval bastions—denounced the legislation as a serious concentration of power in the Secretary of Defense and voted against it. The overwhelming vote for it was 716. The Senate unanimously voted approval of the unification measure.

Rep. Sterling Cole (R., N. Y.), high ranking member of the House Armed Services Committee and an opponent of

the legislation, denounced it as "unification" and termed it "a merger of the three services into a composite monster." Under it, he predicted, there will be a few symbolic cuts, mostly on paper at the Army and the Air Force, but the real savings will come from the Marine Corps and Naval Aviation.

Following are the key provisions:

- Department of Defense: The "National Military Establishment" is converted into an executive department, a "Department of Defense," and the three service departments are made military departments within the Department of Defense.

- Secretary of Defense is given "direction, authority and control" over the department, instead of the "general direction, etc." he held under the 1947 Unification Act. To strengthen his management, four new posts are created: a deputy secretary of defense, in lieu of an under secretary (whose role over the three service secretaries was questionable), and three assistant secretaries of defense. Under Secretary Stephen Early is now deputy secretary. The three new assistant secretaries are Mervyn Levy, formerly general counsel to Johnson, Willard F. McNell, formerly Johnson's assistant on budget matters, and Paul Griffith, former American Legion national commander.

- Joint Chiefs of Staff: A "chairman" of the Joint Chiefs of Staff, a career military man appointed by the President and confirmed by the Senate, is established. Chief of Staff Gen. Omar Bradley, has been nominated to the post. The chairman will take precedence over the three chiefs of staff, but he will have no vote and no authority to make their decisions. A two-year term, one with reappointment permissible is provided. As yet in Chairman Carl Vines (D., Ga.) of the House Armed Services Committee, the chairman's function will be "expedient for the business of the Joint Chiefs of Staff and presiding at their meetings. We do not want him to be anything more than that." Johnson has sought a chairman who would, in effect, be a paper chief of staff, replacing its role.

- National Security Council: The vice president is made a member of the council; the top legal policy group on small foreign and domestic military and civilian affairs. The three service secretaries are removed from membership. Other members of the council, as in the past, are the President, the Secretary of State, and the Chairman of the National Security Resources Board. The President has authority, with approval of the Senate, to appoint the secretaries of departments, the Chairman of the Munitions Board, and the Chairman of the Research and Development Board.

- War Council: It is replaced by the Armed Forces Policy Council. The Deputy Secretary of Defense and the Chairman of the Joint Chiefs of Staff are added to the membership, which includes the Secretary of Defense, the three service secretaries and the three chiefs of staff.

- Munitions Board and the Research and Development Board are clearly placed under the "authority and direction" of the Secretary of Defense.

- A new budgetary organization is established. A Comptroller of the Department of Defense and a comptroller and deputy comptroller in each of the three departments are created to work out "performance" budgets of readily identifiable functional programs and activities, with segregation of recurring and capital programs.

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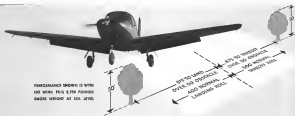
AVIATION CALENDAR

- Sept. 6-8—Aerial sports, plug and guitar conference, sponsored by Commodore Sport, Inc. Co., Hotel Saxon, Toledo, Ohio.
- Sept. 7-11-16th Society of British Aeronautical Construction flying display and exhibition, Farnborough, Farnham, Hampshire, England.
- Sept. 9-12—Class on maintenance of internal instruments, Instrument Society of America, Santa Monica, So. Calif.
- Sept. 10-11—Transatlantic wing, Civil Air Patrol, "Endurance" at Cavanaugh Field, Fort Havel, Fort Meadeville Flying field will be used by those coming to the event.
- Sept. 11—Defensive, Ground, II, aircraft and target.
- Sept. 12-16-13th anniversary meeting, International Air Transport Assn., The Hague, Holland.
- Sept. 12-16—12th national instrument conference and exhibit, sponsored by The Instrument Society of America, Kiel Auditorium, St. Louis.
- Sept. 14-15-14th national device meeting of NARCO, New York City.
- Sept. 17-18—Aircraft Owners and Pilots Assn. annual meeting, landing flight and traffic advisory, collection, Rochester, N.Y.
- Sept. 18-19—International Northwest Area Council conference, Spokane, Wash.
- Sept. 22-23—AEC-CIA-CAN transport meeting on CAR, in relation and strategy, Hotel Waldorf Astoria, Washington, D. C.
- Sept. 26-28—National Electronic Conference, Edgarview Beach Hotel, Chicago.
- Sept. 27-30-1970 fall meeting, American Society of Mechanical Engineers, Hotel Lexington, New York.
- Oct. 5-6-8-12th national aeronautics meeting and aircraft engineering exhibit, Baltimore Hotel, Los Angeles.
- Oct. 7-8—Aerocon Air Mod Society, which has and convention, Edgarview Beach Hotel, Chicago.
- Oct. 12-14-1970 conference on aircraft maintenance, New York.
- Oct. 15-16-1970 conference on aircraft management and operations, sponsored by University of Oklahoma and Southern Flight magazine, Norman, Okla.
- Oct. 17-18-1970 NARCO steering committee meeting, Dallas, Tex.
- Oct. 18-19-6th NAS annual meeting, Westborough, AFB Dallas.
- Oct. 19-21-1970 annual San Francisco Air Fair sponsored by James Chandler of Commerce, San Francisco Airport.
- Oct. 15-15-1970-21st American Air Museum, Los Angeles.

PICTURE CREDITS

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- Easy Accesses and Back Entry
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WHO'S WHERE

Houston-based Division of United Aircraft Corp. has appointed **Charles M. Koenig** engineering manager. He takes over the job left vacant when Eric Nimmo became general manager two years ago. **Raymond F. Lash** left because chief mechanical engineer.

R. C. Maylock, chief engineer of Curtiss Wright's airplane division at Columbus, Ohio, has taken over the duties of deceased W. K. Abel as chief engineer of the division. The job left vacant when W. K. Abel became vice-president of Curtiss (Aviation Week, Aug. 12).

KLM Nepal Desch Airlines has called Peter Branson back to The Hague to be head of the company's production directorate. Since 1946 he had been stationed in Ethiopia as KLM's technical manager at the West Coast.

Nail M. Shuman has been appointed manager of Lockheed Aircraft's field service and training department. He has been with Lockheed for 12 years, mostly in management of service engineering.

Lamarco Vice Cos. Glenbrook, Conn., has appointed H. Albers plant manager. He has been general manager and chief engineer at a construction management firm.

Cleveland Graphic Bureau Co. has elected **William D. Prescott** as assistant treasurer, and **Charles A. Diller** as assistant secretary. **Shirley Products Inc.**, Jamaica, N. Y., has appointed **R. E. Lister** representing **C. E. MacLean Jr.**, a manager of **McGraw-Hill**, Chicago, as manager.

Chlorine E. Sleep has been named Chicago industrial branch manager for Newco Americas, division of Monsanto. Homever Republic Co., Pacific Development Corp. has appointed **Clinton E. Hammer** special consultant for public relations and corporate research. **Top**

Explosion has ranged as director of public relations for Grand Central Airport Co. and Cal Aero Technical Institute. For American Airlines he supervised Arthur La Voie, public relations rep. in Los Angeles.

New Ellington, Ellington Aviation's director of public relations has called the "open-house" job of choosing a consultant to arrange a "Circle of American Aviation Dr." in connection with the Murrell County (N.C.) golden anniversary celebration.

For Fenn, Northwest Airlines' public relations director is very conscious of the northwestern 300,000 who are members of the

...**Frank B. Hall**, 400 Broadway, Manhattan, N.Y. 10013, is president of the International Air Transport Association. **Frank M. Hall**, 1000 Main St., Boston, Mass., is president of the Federal Reserve Bank of Boston. **Frank B. Hall**, 1000 Main St., Boston, Mass., is president of the Federal Reserve Bank of Boston. **Frank B. Hall**, 1000 Main St., Boston, Mass., is president of the Federal Reserve Bank of Boston.

INDUSTRY OBSERVER

• **McDonnell Douglas (DF-35)** will try to beat the world air speed record of 670 mph at Muroc early this month. Present record is held by a North American F86A, powered by a General Electric J-47 turbojet. The Voodoo is powered by two Westinghouse J-34 turbojets and will make three record runs with standard military load (including armament). USAF hopes to beat the speed record close to 700 mph with the Voodoo.

►National Defense Department is pushing renewed pressure on aircraft manufacturing firms to move inland from the east and west coasts. USAF is currently helping Boeing on shifting emphasis from Seattle to Wichita. Navy has approached Grumman on moving from Long Island to the old Goodyear plant at Phoenix, Ariz. Both Lockheed and Chase Aircraft Corp. have been asked about moving into the government-owned plant at Tulsa operated by Douglas during the war. USAF is also anxious to use the government-owned plant at Marietta, Ga., where Bell built B-29s during the war.

► Corvus is spearheading its Corvus-Liner sales campaign with a specially modified, red and blue demonstrator that incorporates all of the latest modifications to the commercial transport. Inferno is fitted with combustion overhauls and an executive compartment to indicate the Corvus-Liner's potentialities as a private executive plane.

► U.S. lightplanes entered in the British National Air Races did not come through with any outstanding performance while both the Czech two-seater Aero 45 and the French Nieuport proved considerably faster than any British executive-type lightplanes. The Czech entry averaged 187 mph in winning one race with two French Nieuports averaging 162.5 and 160. Best U.S. performer was a Globe Swift that averaged 110 mph around a closed course. An Eclipse averaged 112.5 mph in the same race.

►Hawkins's P-380 jet fighter powered by a Rolls-Royce New Mark II was both the SRAC challenge cry and the Kennedy Trophy racer, averaging 510 and 516 mph, respectively. Delivered under Vanner Mark II, powered by a Galloway Mark IV turbojet was second in both races, averaging 488 and 470 mph. Since both races were on a handicap basis the D-113 with swept wings averaged 488 mph, in the SRAC race but finished third. Both races were around a 20-mile quadrangular closed course similar to the old Thompson Trophy course at Cleveland.

►Conover is considering a redesigned water wing panel containing inter-dial fuel tanks to add range to the Conquest-Liner. Limited range of the transport with its present fuel capacity has been a major problem for airlines planning to use the Conquest-Liner on trunk line service.

* **Buckley B-67**, which is already in initial phases of large scale production by the Boeing Co., Seattle, Wash., will be a standard USAF design, based on the B-70, created by its General Electric J-47 turbojets, in some of the world's most advanced aircraft.

The B-67, built by Lockheed Martin Corp., Little Rock, Ark., is scheduled to enter service in 1980. It will have a range of over 1,000 miles and a maximum speed of Mach 2.5. The B-67 will also have a payload capacity of 10,000 lb. and a maximum takeoff weight of 125,000 lb.

Leckman has done an excellent job of fitting the interior of the highly polished "Deep Drop" Concession for long-range contact on travel. By difference between the C-1138 and the Douglas hole positions (DC-6) and by Prudden's T-1000 a location of the more concrete component of the C-1138 Leckman has located the hole in the close vicinity of the center of gravity. There is a measure of his buckling and propeller and organic noise. The Prudden's component in the DC-6 is in the tail where the second buckling is accounted. A congressional subcommittee and numerous accounts returned to Washington from San Francisco about the C-1138 airplane on 31 June 1966. The C-1138 was shot down by the TWA, which was the shot.



VINSON gave Bendis and Vinson to Symington, but Bendis to



WORTH with a promise of still more to come.

Symington and Defense Chiefs Exonerated

Probe finds nothing wrong in B-36 buying as author of 'anonymous' letter recants.

By Robert Hess

House Armed Services Committee censured Air Force Secretary W. Stuart Symington, Defense Secretary Louis Johnson, and top U. S. Air Force generals from all charges of irregularity in the purchase of the Convair B-36 atmospheric bomber and cancellation of \$575 million in other aircraft contracts.

Unanimous vote of the investigating committee and Counsel Joseph Keenan ordered a resolution presented by Committee Chairman Carl Vinson (D., Ga.) stating that "not one vote not one syllable of evidence" had been introduced during the three-week investigation to support charges so piled as a one-page document written by Col. R. B. Worth and signed on the House floor by Rep. James Van Zandt (R., Pa.). Worth, who was special assistant to Navy Undersecretary Don Kendall when he wrote the document, was suspended from his \$10,000-a-year post after his admission of wrongdoing.

W. Zandt: Counsel-Vin Zandt,

whose speech based on the symposium document forced the committee's investigation, voted for the Vinson resolution and later told reporters he was now convinced the charges he used were without foundation. Committee adjourned until Oct. 3 when it will pursue the investigation of the person who told Worth in preparation of the document and its circulation on Capitol Hill. Meanwhile a board of three surviving advisors opened a Navy inquiry to determine the scope of official Navy personnel's participation in the B-36 program.

Vinson offered his resolution, which wound up the first phase of the committee's investigation dealing with B-36 procurement, just after Counsel Joseph Keenan hurled Worth through a storm of criticism in which the former Navy chief abruptly recanted as detail the charges contained in his anonymous document.

Identification: Glenn-Identification of Worth as the long sought anonymous letter writer came in a sudden flash to what appeared to be another

day of routine testimony by military boss Gen Omar Bradley, new chairman of the Joint Chiefs of Staff, and Admiral Louis Denhart, Navy JCS member, was smothered by which Van Zandt opened the session with a demand that the committee proceed immediately with action to identify the author of the anonymous document.

Van Zandt said the identity of the author was known to Rep. Charles Donnell (D., N. C.), Sen. Millard Tydings (D., Md.), Sen. Styles Bridges (R., N. H.), and Vincent. Counsel Keenan told the floor to point out that neither Vinson nor Symington (who had previously testified he could name the author) had furnished him with the writer's name. Keenan agreed with Van Zandt in urging the author be identified and asked that Symington and Donnell be called to the witness stand immediately.

Vinson urged "orderly procedure" with the witnesses at hand but was overruled by clamor from the committee who demanded Donnell and Symington be called to the stand. Vinson is laterally agreed and ordered Donnell and Symington summoned to the hearing.

Vinson: Minutes-Tolson wanted in Gen. Bradley took the stand in the

session and was listened to by high pitched voice building that

• Jet-powered strategic bombing was a vital part of JCS war plans.

• USAF had been assigned by JCS to do that bombing in its primary mission.

• USAF decided to use the B-36 as the weapon for intercontinental bombing but later approved by JCS.

Symington entered the hearing room during Bradley's testimony, after a hurried run from the Pentagon. Vinson asked Admiral Denhart to state at the conclusion of Bradley's testimony and called Symington to the stand. Symington made through the crowded press section toward the stand with the confident air of a man about to land a knockout punch.

Vinson: Bradley-He Symington reached the witness stand Vinson looked at his head.

"Stop me," he Symington," he drawled. "Call me Worth."

Surprised, Symington took a seat next to the witness chair while Worth hurried into the room. With a warning to the committee that he was not a witness, Worth took over questioning of Worth.

"Who delivered the anonymous letter to Congressmen Donnell?" Vinson asked.

"I did," Worth replied. "Who wrote the letter?" Vinson asked.

"I wrote it," Worth replied.

Heily: Detailed-In subsequent questioning, Worth testified the following people had assisted him in providing information for the memo and circulation of it on Capitol Hill:

• Glenn L. Martin, former president and now chairman of the board of the Glenn L. Martin Co. of Baltimore. Worth testified that he made a trip to Martin's Baltimore office to confer about the memo, at which time Martin furnished him information contained therein. Martin later made an appointment to meet Worth alone at the Sheraton Hotel in Washington, at which time Worth gave Martin a copy of the completed memo. Martin told Worth he would give it to Sen. Tydings.

One paragraph in the memo charging that Maj. Gen. K. B. Wolfe, Air Materiel Command procurement director, tried to conceal himself from committee with the Martin Co. to switch the loan to the E. E. Martin Co., carried the notation: "The name of the man and the agency may be obtained from me. Martin."

Worth and he had not contacted any other aviation firm for information or assistance in circulating the memo.

Convair: Thomas Dwyer, Naval bomber expert and chief of the Lockheed T-33 project (F2V) on its second



KILGUSON got \$15,000 in five years but...



COLMAN got had seen in such test doc.

11,239 sq. mi. (mostly right from Argentina to Ohio). Worth and Dwyer had accompanied him to Baltimore to see Glenn Martin and had furnished information regarding the Beverly Hills residence of Col. Frank C. Wolfe (Aviation Week, Aug. 29), the alleged uncle of Symington and the father, Col. Frank C. Wolfe, president of Atlas Corp. and Convair board chairman, and USAF plans to control B-36 production.

• E. E. Martin, Washington representative of the Glenn L. Martin Co. Worth and Dwyer accompanied Dwyer and himself to the Baltimore conference with Martin.

• Louis Samuel Nagata, of the Office of Naval Operations. Worth and Dwyer had furnished information for the memo and had made the original contact between Rep. Donnell and Worth. Dwyer testified the Vienna conference with Worth on the issue of information was the same one: Capt. Leon C. Sengler, Navy aviation policy officer, and Hugh L. Pearson, civilian

employee of the Bureau of Aeronautics. Worth and Sengler might have passed on some comment on the B-36 to him at a dinner party. Worth and he knew Hanson, who earlier had been a source of controversy between Symington and former Defense Secretary Foran over Hanson's letters to Washington newspapers regarding USAF performance data on the B-36 and the efficiency of strategic bombing.

"We'd show that plenty of people in the Navy Department had to do with this before we'd through," Vinson commented.

• Kenneth Tammam-Worth denied that his immediate superior, Donnell, told him to write the anonymous document. Worth charged his testimony that he had told Kendall he made the document about five days before he testified before the committee. He said he had been mentioned to Kendall that his name had been mentioned on Capitol Hill in connection with the document. Kendall testified that he was busy with other matters and

Vinson's Verdict

"There has not been, in the judgment of the committee, any reliable evidence offered that for in these hearings that would support charges at committee that collusion, fraud, corruption, influence, or bribery played any part whatsoever in the procurement of the B-36 bomber."

"There has been very substantial and very compelling evidence that the Air Force has selected this bomber and passed this bomber solely on the grounds that this is the best aircraft for its purpose available in this nation today."

"As of this time, I feel that the nation should know that the Secretary of the Air Force, Mr. Symington, the military leader of the Air Force and the Secretary of Defense have come through this inquiry without the slightest blemish—that there were enough to merit the complete confidence of the American people in their past actions and in the future."

Chairman A. Vincent (D., Ga.), Chairman House Armed Services Committee, the full committee, and Special Counsel Joseph Keenan unanimously approved Vinson's statement.

NEW AVIATION PRODUCTS



Measures Vibration

For vibration frequency pickup instrument, "Vibulab," offered by Yeh-computing Corp., Burling, Calif., is claimed to open new fields of vibration study, because it will fit into tight spaces formerly inaccessible to larger units.

About size of aspirin tablet and weighing less than gram, instrument is said to be valuable tool to detect and analyze study, flight testing of aircraft structural sections, wind tunnel experimentation, parashut and aerospace testing and other applications requiring vibration analysis. Device has life expectancy of 100-500 hr. and will respond to acceleration frequencies from 1 to over 2000 cps.



For Fastener Removal

Tools for removing Dorn and B-S fasteners are offered by Ansonite Tools, Inc., 2706 E. 18 St., Los Angeles, Calif., in separate kits, AT-590 E and AT-590 C.

Dorn fastener removal kit has special sharp countersink, nut and three matched sets of collar cutters and collar

grippers, engineered to individual fastener dimensions. Grippers are designed to hold fastener collars rigid during cutting operation. It's fitted with no-slip operator to remove Dorn collars quickly and efficiently, without marring metal surface.

B-S fastener removal kit has special "Worm-Set" stop mechanism, used to prevent mutilation to skin surface. Tool is designed to guide collar cutter to the fastener locking collar. Four collar cutters are supplied in this kit.



Electronic Inverter

Analog inverter made by Elvac, Inc., Chicago, Ill., electronically controls output voltage within 20 percent and output frequency within a 10 percent range. Used operates on 25-250 d.c. to supply 115, a.c., 400-cycles current rated at 1500-2500 volt amp.

Electronic control, governing both output and output in-voltage inverter, is said to be completely new development.

Stable Graphite Parts

Stable graphite film which can be applied to practically any surface has been announced by Electrofilm Corp., 7116 Laurel Canyon Blvd., N. Hollywood, Calif.

Although coating is only .00015 .0001 in. thick, it is said to have high resistance to abrasion and exceptional bearing strength. Adhesion also is high and on metal and most other materials, product is sufficiently diffused into surface to assure permanent adhesion even when external coating is removed.

New film can be sprayed on or applied by dipping. It is stated to have been successfully used on metal, plastic, rubber and composite. Material can be coated over plated parts.

Product is represented to be unaffected by solvents or weather and, under certain conditions, can withstand temperatures of -130 to 2000 F.



Removes Moisture

For maintaining dry air in carburetor intake ports and adaptable for moisture-free processing of engine ignition harness, special filter-dehydrator is announced by Lutz, Inc., Elvert, Ohio.

Device has triangular tubes containing, e.g., grade A, high adsorption capacity silica gel. Attached manually, color-coded indicator silica gel outlets at 0, 25, 50, and 60 percent relative humidity. Two-tube model (shown) has fill-in, on-valve unit, will operate and hold 6 to 8 in. of water vapor from moisture air as go. There also has been check screens and filter pads to remove foreign matter.

Grade A silica gel used has 4-1 ounce water absorption capacity than lower grades and is extractable in metal containers. Dehydrators may be modified to tube diameter and length for installation requirements, or to remove trace between outlets.



For Soldering Jobs

Improved 210-watt soldering gun, Model WD 250, offered by Weller Mfg. Co., Erie, Pa., is stated to be new and only few ounces heavier than previous 155-watt unit produced by company.

Device has built-in spotlight and heats up in 5 seconds. Improved design provides more copper in clamped-hand.

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Solution to numerous problems in research. Areas: light handling and microscopy are covered in the latest Thomson-FIDE.

F-84 Thunderjet: A Story of Development

Craft's history points up difficult hurdles encountered in engineering jet fighters to meet service demands.

By Robert McLarnon

It is now no longer prudent to refer to the jet airplane as a "new field," for its history covers more than five years of intensive effort. No longer are jet aircraft solely experimental models "under development." Rather, they are now standard types in fighter, light and medium bombardment categories in the Air Force. Today, there is ample evidence sensible to assert the development phase of turbojet-powered aircraft

A typical example of extensive development work in the jet plane category is the Republic Thunderbolt fighter, now old enough to have participated in its particular field (over-flow turbopropeller) jet now enough for brand new models to be coming off the production line.

But it is typical for a more important reason—its development history includes a key thread of early troubles culminating in a "critical" situation, as continuous effort to solve that difficulty and its eventual solution by an ingeniously simple device, a cross-section of "changes" ordered by the customer, and many rejections by the vendor, and the continuous addition of new devices and

The F-56 Thunderbolt began life in 1944 with the General Electric TG-180 (J35) ramjet turbojet engine, which the Air Force requested Republic to install in a modified version of its highly successful P-47 Thunderbolt fighter, then in quantity production.

After Hamilton design studies it became evident to the company's engineers that a more effective solution lay in the design of a completely new air-glide built around the new engine. Approval was obtained from the Air Force for a wholly new project designated the XP84.

► **Performance Considerations**—Request awards called for a penetration lighty, possessing high speed and long range, two reasonably exclusive performance characteristics. The performance constituted the sole purpose of the project, and in which the Air Force allotted 100 percent evaluation—a figure subsequently drastically revised.

Since high speed required a firm profile, long range is that, one, the initial compromise in the project was on selection of an airfield. A consideration that militated against a truly high-speed

suction was the decision to place the leading gear in the wing. This was to keep the fuselage as small as possible but the advantage of the tail flow in was lost.

Requirements for a heavy load and a high operating altitude required for mountain engine performance also ruled out a flat, symmetrical profile. As a result, a slightly concaved profile with 12 percent maximum thickness and 8.94 percent maximum camber was designed. It consists, principally, of a elliptical section with a slightly reflexed trailing edge. It has a drag coefficient of 0.17 at zero degree angle of attack and maximum thickness at 51 percent chord. Its degradation is the Kowalewski B-6, 45.13(2.2:9 axial) sec.

► **Wing Geometry**—This was the next problem. A constant section thickness was chosen throughout the span and a taper ratio of 0.57 was selected to provide a semi-elliptical load distribution.

The aspect ratio problem was thoroughly studied, the compromise being between a low value for high speed and a high value for long range. Ratio of 5:10 was selected as optimum for the subproblem associated.

To provide satisfactory stall characteristics, 1 deg. of washout was pro-

ided by use of zero degree root incidence resulted in approximately half the screwup, outboard of which the sailcloth began and continued to -2 deg. incidence at the tip.

- **Flip Adhesive Patches**—Partial open-slotted flaps of 35 percent chord are used, with the linkage moving the flap directly off about 13 percent chord, after which it returns down to a full 40-deg deflection.

Designing minimum speed of the plane presented some unknown adverse problems, accommodated by a control boost system adjustable in flight by the pilot from zero to 100 units, a moderately high value but one intended to cover unknown control forces. It has since been found that most pilots use a rate of 61 or less, because of the actually low, such forces.

As a safety measure, the gliders also were equipped with a sealed, internal acceleration linkage to provide some reduction in stick forces in event of power boost failure. While these forces are somewhat high, they are well within pilot capabilities, since the airplane has been flown repeatedly at indicated speeds up to 350 mph, with the boost system cooperative and without difficulty on the part of pilot.

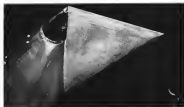
► **Wells.** And-Primary consideration is fracture layout: the adoption of a streamlined, low-drag form, whose main dimension within the surface of revolution was determined by power-pole diameter. (Minimum vertical extension is, of course, at the cockpit, which lies outside the surface of revolution.) By use of careful fabricating techniques, this form produced a critical Mach number above that of the wing.

Tensorage is of a straight-tapered design. Flaremetal tail has an area of 48.4 sq ft, span of 14 ft, 11/8 in and aspect ratio of 8:65. Profile is a 10 percent symmetrical section of the same family as the wing. Dihedral is same as the wing—5 deg. The struts (two) is attached to the fin at same degree incidence at a point 31 in above the extension of the wing root section.

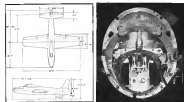
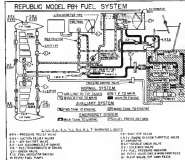
Flexion is 30 percent of the horizontal distance and uses an internal-rotated balance. The distal edge of the clavicle is located just forward of the shoulder hinge line and inflow, so the pit has no measurable effect on the clavicle hinge moments due to this spread, forward motion.

Vertical hull is relatively large, with an area of 10.4 sq ft and aspect ratio of 1.65. It uses the most symmetrical 10 percent profile as the basisternal surfaces. Rudder is only 24.7 percent of the vertical hull area and uses an internal sealed hollow.

and ventral fins are used on the air discharge. Although both are small they are quite effective as shown by



The task is very sensitive to stability problems. The allowed speeds up to that of clean craft



Left: Box, diversion of FBI. Right: Four belts on hoodys simply engine started



Fuelers carrying loads 11 in. below wings mounted this difficulty. Radaris have been fixed at airplane speeds up to 550 mph.

NACA's open tunnel investigations. **►Coastal Make-up-Separate** of the Thundershot is conventional with the exception of the wing aileron through an segment in the fuselage.

Wing structure uses a conventional two spar but comes with the forward leading edge comprising a D-shaped beam cut. Necessary for storage of leading gear in the wing created a minor structural problem in that large thin sections were required. These were also necessary for attachable bomb rails and wing gun case and link ejection chutes.

For this reason, the lead is gradually taken out of the rim and placed in the rear spar proceeding inward to the fuselage fittings. The wing makes generous use of 758T extrusions and forgings in the rear spar, the auxiliary spar and adjacent ribs supporting leading gear loads.

Because engine fuelage connection is occupied by the engine, it was impractical to carry the wing through without an excessive sacrifice in body thickness. Therefore, Republic engineers resorted to finger rib bulkheads used in the XF-122 Rainbow, free-sprung intercompartments cut. These are heat treated steel keeping stiff in bulk and spread the load behind the wing centerline. These fittings have sustained 124 percent of the ultimate design bending moment.

Principal design features and installation problems of the Thundershot program were discussed in *Aeronautics* (May, 1948).

►Fuel-Use Sequence-Because of large range performance requirements, a variety of tank locations and capacities was provided. Fuel cells were started between the ribs and spars of each wing panel, with the five cells in each wing interconnected to form a single tank. There are two fuelage tanks that are interconnected to form a single tank, and a main fuselage tank. In addition, there are wing tip tanks.

The variety of tank locations presented problems of airplane trim changes due to fuel consumption. The

engine is supplied from the main fuselage tank, all other tanks emptying into this by a series of tank and booster pump speed selections according to a predetermined sequence.

Tip and main tanks have little effect on the plane's C.G., but emptying of the forward fuselage and wing tanks produced a pronounced change in the airplane trim.

To accommodate this difficulty, the following sequence of tank selection was used: 1. Wing tip tanks, 2. top half of the forward fuselage tank, 3. wing tanks, 4. bottom half of the forward fuselage tank, and 5. main tank. Cabin pressurization is obtained by a high pressure bleed from engine compression and is regulated by control of air outflow from the cockpit.

Cooling is accomplished by a simple intercooler-bypass system. Compressor discharge air is routed through an intercooler, which, at engine maximum air level speed, reduces the temperature from 450 to 270 F. This is then facilitated in about 30 F by passing it through an expansion turbine. The work of expansion is absorbed by a fan that pumps cooling air through the intercooler.

Heating is accomplished by using compressed air directly from the engine compressor casing and mixing it with the cold air from the expansion turbine. An automatic temperature controller maintains the cabin within ± 10 deg. F of the temperature selected by pilot.

►Initial Trials-The prototype was completed in December, 1945 and loaded aboard the Boeing NC-97 transport and flown to Muroc Air Force Base, Calif. in good season. It made its first test flight Sept. 28, 1946, at Muroc, with Maj. Wallace A. Day at the controls. Performance of these prototypes immediately proved spectacular and a U.S. speed record of 611.1 mph. was established Sept. 7, 1946.

Subsequently, the plane attained 621 mph in a single pass over the record course, narrowly missing a world record by failing to exceed the existing British

speed of 616 mph. The record was set at 5,000 ft. in low passes. After passing the required Air Force evaluation tests, the aircraft was released for production as an initial order for 100 B-29 Superfortresses was revealed. The total of 390 planes in various models.

The first group of 15 B-29s was assigned to Muroc and Wright Patterson Air Force Base, Dayton, Ohio for further evaluation and pilot familiarization flying, and the rest of development put under way. **►Tack-Up Troubles**-One of the first unusual characteristics of the airplane discovered by Republic test pilots was a tendency to "tack up" rather than the more conventional "tack under" of other high speed aircraft.

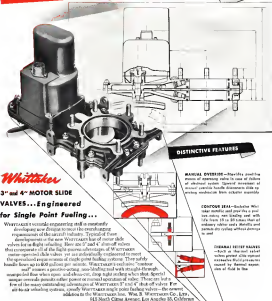
Power of the F-56 is sufficient to fly the airplane at a speed in excess of its critical Mach number, and when this latter value is approached buffeting is encountered and the airplane trim is changed to a nose-up pitching moment in contrast to the tendency of other fighter and research airplanes to nose down under compressibility effects.

Design of the latter phenomenon is obvious and has created the necessity for high-altitude speed courses. However, the unique speed tendency of the F-56 is actually a safety feature and at least one pilot owes his life to this feature after losing consciousness at high altitude and "coming to" at less than 10,000 ft. or so.

Despite its otherwise theoretical basis in air and engine laws, no explanation of all this phenomenon is yet available for publication. It has proved difficult to obtain downward angle while in test, and data accurate enough for flight analysis. A larger horizontal tail is being installed on the prototype to determine its effect on this phenomenon.

NACA considered tests on a modified trailing edge angle of the aileron and results indicated that a smaller trailing edge angle would probably help the aircraft and delay the point at which tack-up occurs. But this has not yet materialized in Republic flight tests.

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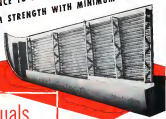
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6-100

PRODUCTION

Meaning of Minimum Wage Fight

Increase in standard, industry says, could add \$30 million to production cost and cut military deliveries.

The aviation manufacturing industry has now set for another shot in its battle to shore up government wage action that could stifle the manufacturers' competitive course for years to come.

As a follow-up to the hearings recently held in Washington by the Department of Labor on acceleration of a minimum wage in the industry (Aviation Week, Aug. 31), the Aircraft Industries Association will submit a supplemental brief taking issue with the original approach of the Department of Labor, and also attempting to set down some approaches for a \$1.15 minimum wage.

Long Range Effect—Present minimum wage standard in the industry is 30 cents an hour. AIA doesn't think this is the time to change, but if controlled by the Labor Department AIA thinks the new rate should be between 30 and 35 cents an hour. AIA notes after few weeks now get less than 35 cents, so on the surface the approach looks moderate. But it isn't.

A rise in the minimum wage standard, according to industry experts, adversely could:

- Add \$40 million annually to the industry's wage costs
- Mean firing 18,000 present industry employees
- Cut military equipment deliveries
- Drive some companies out of aircraft production

These companies are extremely important military suppliers, but their aviation business is only a small part of their total work. They say that if the industry must increase minimum wage so much company-wide, their commercial products would be so expensive they would not be competitive.

Why this would happen is complicated, but it is the result of the industry's cost. Depending upon where they work you can run into (a) the union that has less than 10 percent of aircraft workers make less than \$1.15 at least, so pay pay costs streamlines in the industry and (b) the industry doesn't want to pay a premium to get a 77 percent of the industry's current minimum would have to get a raise.

Differential Pay—The union, the

government and AIA all know you can't raise the wage of only part of the industry's employees. The point is "not to raise."

- As employer's guide in keeping the existing differential between his pay and that of someone with less training and less responsible job
- Union contracts which in most cases provide for a classification or wage differential in pay

The second reason in the more recent it means that if a minimum wage of more than 35 cents is set, practically all workers will have to go up.

And the rate will be further in some contracts.

Permanent Rates—Those contracts, 2 is pointed out by the industry, will be effective in the industry, but the cost will be. Right now, about 30 percent of the industry's output goes to the military. Actually, the minimum wage policy by the Labor Department is effective only for military equipment. But 77 percent of those working on government business are insured. And even the pay rates in union contracts, they apply even to work done for civil contracts.

The industry says, "Suggest military business drop off manufacturing that will have to live off commercial business. But the price of both personal and transport cannot be raised so fast." The industry says, "The industry is being a victim of the cost of the industry. The industry doesn't consider that the minimum should be raised now."

Artificial Economy—With a military backlog of about \$2.5 billion, AIA estimates that, the industry is being a victim of the cost of the industry. The industry doesn't consider that the minimum should be raised now.

The industry also agrees with the approach of both the union and the Labor Department. The War Relocation Authority (WRA) has been set up to help the industry. The industry doesn't consider that the minimum should be raised now.

The industry also agrees with the approach of both the union and the Labor Department. The War Relocation Authority (WRA) has been set up to help the industry. The industry doesn't consider that the minimum should be raised now.

mean should be based on the overall distribution of wages, industry says.

The industry says the prevailing minimum should be based on the cost of the industry. The industry doesn't consider that the minimum should be raised now.

RIA vs. AIA—The Bureau of Labor Statistics calculates that, industry-wide, 9.8 percent of workers get less than \$1.15 an hour. But, says AIA, these figures include skilled and semi-skilled workers and unskilled workers whose pay has advanced through upgrading and seniority.

AIA submits other sets of figures showing that the employees below the "maximum" wage is only the unskilled, and that an increase in the minimum wage would cause a loss of 9.8 percent of workers in a job with an increase rate less than \$1.15 an hour, and that 2.7 percent have minimum contract rates in the 30 cents an hour. Therefore, says the industry, the proper prevailing minimum wage should be in the 30-35 cent bracket.

PRODUCTION BRIEFING

Being Argonne Co. delivered its material to the North American, the fourth for the contract. Previously, 13 had been delivered to the North American and two to the American Overseas Airlines. The order contract was for 250,000 lbs. of material to the Navy, AIA, United Air Lines and British Overseas Airways Corp. USAF took delivery of its first G-87A Strathgairn.

Sperry Gyro Co., headed by Harold M. Sperry, has secured a contract with the Navy for 250,000 lbs. of material to the Navy, AIA, United Air Lines and British Overseas Airways Corp. USAF took delivery of its first G-87A Strathgairn.

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Latest Air Force Bid Awards

As Microsoft Command procurement Division makes available to Government Windows the latest tool awards, shown on this page. Requests for further information should be addressed to Contracting Officer, AFM, Wright Patterson AFB, Dayton, Ohio, at telex: MCFPS677.

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Int. (University Springs) on a bid of \$100-
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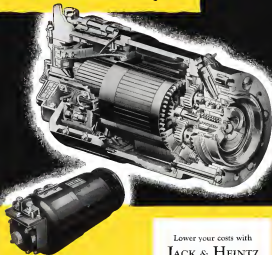
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 (100%)
 Price paid, **Stanley Products, Inc.**, installed
 on a bid of \$100.10
 For agreement noted other within 10-
 100%.

Harrison Electrical Mfg. Co., Mansfield
Pa., on a bid of \$24,470.31.
For 648 cases; accessories 149 (same);
Technology Corp., Kansas City, Mo., on
a bid of \$20,000.
For asbestos lining, and cap (same);
Casper's Electric, Inc., St. Antonio,
Tex., on a bid of \$10,000. Above.

Living Co. Cleveland on a bid of \$104,110; Hartford Aircraft, Inc., Incorporated Oakville on a bid of \$104,410; Wheelabrator Co., Cleveland on a bid of \$105,072; Aircraft Hardware Mfg. Co. Inc. Fremont N. E. on a bid of \$108,181; Dressbark Co. Los Angeles on a bid of \$110,710; V. S. Gray Co., New Rochelle, New York on a bid of \$120,210. Advertisements by: National City.

AVIATION WEEK September 5, 1989

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SALES & SERVICE



FABRIC CLINIC. Experienced advice is compared with recovered one by Harry Mitchell, General Aircraft Supply Corp. vice president, William Bagley, Titmouse sales engineer, Martin Bickel, vice chief, Larry Eggen, GASC president, and Charles Reinhold, maintenance superintendent.

New Life for Fabric Coverings

Synthetic enamel finish as replacement for 'aircraft dope' promises greater durability and lower cost.

A new method of aircraft refueling using synthetic enamel instead of the commonly used "aircraft dope" was being new life to the fabric-covered light airplane market by inducing costs of refueling, one of the greatest expense burdens of owner of fabric-covered airplanes.

Major finishing manufacturers have not completed work here in the life of enamel finished fabric and it is still too early to accept the synthetic enamel without reservations as an enamel finish that favorable reports are being heard from exposure-panel tests made in Florida under rigorous conditions, and from the "endurance test" currently being made by an enamel finished aircraft plane.

► **Reduced Cost—Durability** that cost of refueling was reduced as much as 50 percent by the enamel method is one by some engineers.

Advantage of such a cost reduction in the closely-competitive light airplane market would give fabric-covered aircraft a firmer place in the competi-

tion. Much of the ground lost by fabric-covered craft in the recent market since the war has been due to the high cost of refueling fabric, to make it competitive with the relatively lower life oil used skin.

► **Chase Endorsement—First** open endorsement of the synthetic enamel finish for fabric-covered aircraft was given by Chase Aircraft Supply Corp. and its branches at the recent clinic held at Boston City Airport, last month, more than 100 dealers and distributors in the three-state distribution area served by General Aircraft Supply Corp.

William Bagley, Titmouse, Inc., sales engineer with approximately 30 years experience in aircraft finishing techniques, gave operators with dope shops something else to think about.

The Dope Method-ville predicted the hot-dip method will dominate the fabric (conventional) refinishing of fabric-covered aircraft, as well as their original construction.

Bagley, who conducted the clinic, pointed that several new dope-basting

devices, readily adaptable to the dope shop of a fixed base operation, are now being prepared for the market. Equipment cost is estimated at around \$500. By pre-basting the dope, a controlled viscosity can be maintained which permits a more accurate control of flow from the dope gun. Temperature of around 165 degrees is used for the hot-dip method as compared to an usual temperature of 70 degrees for cold dope.

► **Continuity State—Bagley's** advocacy of hot-dip dope meant considerable continuity in the clinic with many of the operators supporting the older cold-dip method (usually still in use in refinish operations).

Other advantages of the hot-dip method cited by the Titmouse representative include a virtual elimination of the need for thinners, and greatly reduced "blinking or blotching." Not least is a saving of considerable labor as well as improved finish. He predicted that savings effected by using the pre-bast method would pay for the shift from equipment in a short time.

► **Wet Fabric—Bagley** also warned against the practice of dipping wet fabric, pointing out that fabric which has been waterproofed should be allowed to dry thoroughly before dope application. A wet surface applications is prone to regreasing and cracking because the dope never established a firm bond on the fabric, he warned.

Clinic included a number of demonstration of fabric refinishing techniques, using service operations taken from shops at the airport. Most spectacular was the re-covering of a three-year old airplane which was badly checked and damaged. It was substituted by a Detroit fleet operator. After being worked over with dope rollers and a powerbrush, it was decided that the advice and its own could be refinished and put back into service without re-covering.

Plans Record Tries On World Flight

Jack Broad, Houston, Okla., pilot, who hopes to fly a four-place all-steel Johnson Bullet plane around the world, made to set a new lightplane distance record as the first leg of his projected flight from Oklahoma City to Kani, Italy, (5,500 miles) and to the head, the record in the last leg of his flight, 5,500 miles one-way from Tokyo to Oklahoma City.

Rest of the flight itinerary includes legs from Rome to London, Paris, to Tehran, Iran, to Karachi and Colombo, India, to Hongkong and Singapore, China, and then to Tokyo.

The plane is powered by a 135-hp Continental engine.

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Bridgeport Upholstery Fabrics are 100% wool, nylon, smooth or ribbed to avoid clinging to clothes.



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BRIEFING FOR DEALERS & DISTRIBUTORS

LIGHTPLANE FUEL-Shell Oil Co. has announced a new 50/57 octane aviation gasoline designed to provide light planes with a controlled blend of fuel as well as standard octane rating. Shell Aviation manager J. S. Hays says the fuel can be used in some regions in the 450 hp class which previously required 51/50 octane gasoline, as well as in smaller engines. The 50/57 fuel will be sold by Shell dealers at the former 80 octane price.

HYDRAULIC CRUISE CONTROL-Hydraulic control has been incorporated in a new version of the Stratus-2000 control for Aviaton airplanes. It is a basic control, along with an F330 Aviaton propeller on the 145 hp TEMCO TE14 military type engine. It is the first installation of the control/governor combination on the Continental C-41 engine. CAA approval is being sought also for other installations of the hydraulic control on the 135 hp Lycoming engine and the 130 hp Franklin engine. Under version of the control device (Aviaton's Warco, March 30) have been voluntarily approved. The Lycoming arrangement was adopted for fringe shaft installations to simplify installation and servicing problems. The control makes it possible for the pilot to adjust pitch to maintain rated rpm up to the service ceiling of the airplane. At the same time the control/servo/pitch system is a sensitive pitch-servo characteristic, subject to the air-speed control.

NATIONAL FLIGHT REORGANIZES-National Flight has announced consolidation of its national headquarters at 680 Market Street, San Francisco, and selection of new officers. Robert F. Conelli, general manager of the corporation for the past two decades, Dick Powell, vice president, Frank J. Dwyer, western regional director, succeed Robert Pike, as vice president.

SEATING AMBULANCE PLANE SERVICE-Operation of air planes equipped for ambulance service can take a step from Detroit Ambulance Service, Detroit, which recently bought a Beech Bonanza, fitted as a flying ambulance and granted in yellow and white to correspond to the company's fleet of 30 ambulance automobiles. To acquire medical service in the Detroit area with the advantages of its new three-engine plane, the company is seeking competent demonstration pilots for use at the 2000 airplanes in the Detroit area who wish to accept. The demonstration includes permitting the pilots to take on the letter to let him know how comfortably his patient would be in a similar flight.

REGAL DISTRIBUTORS-Regal Air Corps, New York, has announced appointment of the following new distributors for Regal, high class protective finish for aircraft metal, wood and fabric surfaces: Alan Anderson Ltd., Ottawa, Canada; General Aviation Supply Co., Inc., St. Louis; Air Associates branches in Chicago, Dallas and Burbank; and Standard Products, Inc. (formerly S. A. Long Aviation division), Wichita.

EMIGH TROJAN PRICES-Prices of 1973 and 1974 respectively have been announced for the 52 and 55 hp versions of the five-place aircraft, known as Emigh Trojan airplanes, which are going into production at Walnut, Ala. Harold E. Emigh, designer and president of the Emigh Trojan Co., which has acquired most of the Emigh Aircraft Co., of Norwalk, Calif., reports that service tests and public reaction to 11 models of the 55 hp version which were delivered last fall to seven test sites, have been very favorable. The final airplane will have the following standard equipment at the prices quoted: Continental 55 or 58 hp engine, metal propeller, Bendix and Wilson mufflers, Willard battery, starter and generator, Auto Pilot emergency fuel pump, Scott parking brake, and Kollsman and Stewart Warner instruments. Optional extra installations will include radio, lights, and a child's jump seat. —ALEXANDER MURPHY

AIR TRANSPORT

Domestic Trunkline Operations (First Half 1948 and 1949)

Carrier	Operating Fleet 1948	Net Fleet 1948	Operating Fleet 1949	Net Fleet 1949
American	51,002,561	33,332,181	51,002,561	33,332,181
Eastern	(11,498)	10,797	(11,498)	10,797
Capital	345,238	332,117	345,238	332,117
Delta	178,314	169,181	178,314	169,181
Continental	58,717	50,000	58,717	50,000
Delta	(211,616)	(162,684)	(211,616)	(162,684)
Delta	118,498	108,287	118,498	108,287
Eastern	6,158,264	5,282,363	6,158,264	5,282,363
Midwest	177,929	166,946	177,929	166,946
Northwest	185,040	166,946	185,040	166,946
Northwest	1,008,000	1,000,000	1,008,000	1,000,000
Northwest	(104,267)	(104,267)	(104,267)	(104,267)
Northwest	(182,777)	(182,777)	(182,777)	(182,777)
TPA	(382,348)	(382,348)	(382,348)	(382,348)
Western	178,314	169,181	178,314	169,181
Western	12,000	(70,320)	12,000	(70,320)
Totals	519,202,472	319,461,797	519,202,472	319,461,797

* Estimated. Passenger traffic in millions.
(CAA traffic figures. Scheduled operations only.)

Airline Earnings in Fast Climb

Carrier having best post-war year financially, while rivals continue to slip. Fender traffic gains big.

By Charles Adams

Highest post-war earnings in the history of U.S. commercial air transport appear within reach this year.

Although domestic traffic slipped moderately from the record level reached in June, profits continued to accumulate during the summer months of U.S. flag air transport, and also as long-term bookkeeping in 1949, which at that time in the post-war period.

First Half Earnings—Nearly complete reports for the first half of 1949 show that the 16 domestic trunklines had an operating profit of more than \$11.6 million, and a net profit of about \$6.7 million. During the same 1948 period the domestic operating loss was \$10.5 million.

In the first six months of last year 13 of the 16 domestic trunklines reported in the red. But in first-half 1949, 11 of the carriers were in the black. At least three more companies went over to the profit side of the ledger by the end of the year.

July Reports—Paul Hester, Northwest Airlines president, reported his

company had a system-wide net profit of \$571,000 in July, down substantially from the \$1,032,000 net earnings in June, but still far ahead of July last year. So, NWA finished the first seven months of the year with a 35.34% net profit covering both domestic and international operations.

Midcontinent Airlines, which had a \$148,430 net profit in first-half 1949, earned an additional \$45,000 in July. In July of last year, MCA's net was only \$13,000.

Northwest Airlines posted a first-half operating loss of \$104,000 by earning \$125,000 in July. At the end of the first seven months of last year, NWA was almost \$880,000 in the red.

Traffic Gains—While July and August traffic on a number of trunklines dropped to 10 percent below the June peak, most carriers showed the downward trend. Capitalizing on its record passenger earnings rates in Florida, National Airlines had 8.7 percent more passengers in July than June.

Complete figures show that the 15 domestic trunklines during first-half 1949 flew 18 percent more passengers

15 percent more passengers, and 41 percent more freight ton-miles and almost 59 percent more mail ton-miles than in the same period last year. Only traffic category counteracting the trend was express, which fell about 15 percent.

Rails Loss Good—As the air transport industry reeled on August 1st, 1949, railroad passenger losses continued to pile up. During the first seven months of 1949, first-class rail passenger mileage (passenger and public rail) was down 8.6 percent from last year.

Airline captured 15.4 percent of the total domestic first-class rail market in the first four months of this year, compared with 16.1 percent in the same 1948 period. During May and June the first revenue passenger-mileage ratio in second-class rail of the total domestic first-class travel center.

Real estate mortgage volume in the first four months of 1949 slipped 15.5 percent from 1948, and industry has passenger mileage was off 6.4 percent in the first quarter.

Greenwood Business Impasse—C. C. Greenwood, president of the airline traffic group, said that major international routes were more profitable during the first six months of 1949 than last year. TWA showed a \$1,034,000 operating profit on its common services by the first half of this year, compared with a \$1,484,000 deficit in the same 1948 period. American, Domestic, and Eastern \$164,000 operating loss on June 30 was under last year's \$795,000 deficit.

Chicago & Southern reported a \$104,000 operating profit on its Delta American lines in July. In July 1949, Northwest's operating loss in the Delta to Alaska, Hawaii and the Orient was \$780,000. United made \$147,000 on its West Coast to Hawaii line, while East had a \$148,000 operating profit. But a \$1,036,000 loss on its line to Alaska, Hawaii and the Orient was \$1,036,000 on its line to Alaska, Hawaii and the Orient.

PSA in Black—Pan American Airways continued to record a \$1,484,000 operating profit on its world-wide operations during the first six months of 1949. But the earnings are contingent on the carrier's receipt of more than \$1.5 million in fuel price above the firm actually paid in July.

Traffic Passengers—With a five percent drop in passenger traffic, Eastern Air Lines and Southwest Airlines, the domestic leaders failed to make money during the first six months of this year. But as a group they made positive traffic gains over first-half 1948.

Frederick passenger business was no more 71 percent, freight 91 percent, express 78 percent and mail 66 percent. American passenger load factor for the month of July was 75.4 percent in first-half 1948 against 24.9 percent in the same period last year.

World's most reordered four-engine transport

The internationally famous Lockheed Constellation is the world's most reordered four-engine transport. In the past year alone, 46 of these heavy airliners were produced by seven major world airlines.

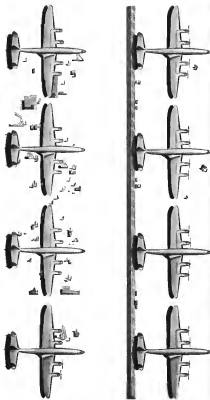
Three World Air line bought an additional 10, leaving its fleet of Constellations to 32, the largest standardized four-engine fleet in the world. It was TWA's sixth order for Constellations. Eastern Air Lines bought seven more—its third purchase. Air France ordered an additional six—at \$15 million. KLM Royal Dutch Airlines bought four new Constellations, the fifth time it has purchased this 314-mile-an-hour transport. The Union of South Africa bought a fleet of four for the South African Airways, newest member of the Constellation family. Air India International bought two, and Queen Elizabeth Airways, which flies the King of Sulu, Amsterdam, to London via, ordered one more.

It is the most and most widely diversified for the Constellation that has kept Lockheed's Constellation production line in continuous operation. The production line has never been shut down.

This most and proven heavy transport has now flown 3,000 million passenger miles, including more than 15,000 Atlantic crossings. It is flown by 12 major world airlines.

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LOCKHEED
for leadership

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Premier Tassins during all the operations.

But the President, acting in accordance with his statutory authority, advised CAB that in the interest of national security it was desirable to authorize Resort Airlines for foreign and overseas services. Accordingly, the Board last spring authorized RAL to conduct all-expense air service between the U. S., Mexico, the Caribbean area, South America and Canada for five years (Aeronautics News, June 20).

In view of Resort's certification as tentatively by Presidential caprice, CAB appeared the case to reconsider the bids of ANACD and RAL for domestic service.

► **Present Service Cited**—The Board's latest opinion states that currently-certificated airlines have provided all-expense air lines in conjunction with travel agencies since before the war. Travel agencies (through tour operators) negotiate and sell the package vacation, with the airlines performing the required transportation.

To reduce travel agencies to private enterprise basis, the certificated airlines have adopted a resolution providing for payment of a 10 percent commission on the sale of this type transportation, compared with the 5 percent commission on regular commercial travel. CAB and United Air Lines, Eastern Air Lines, TWA, Delta Air Lines and Capital Airlines are being among the certificated concern particularly active in the domestic air cruise field.

SWA Re-Enters Overhaul Field

Southwest Airways Co., South San Francisco, Calif., is now looking for outside overhaul work. The carrier with three times special maintenance facilities two and a half years ago to concentrate in establishing its base operations on the West Coast.

Overhaul shops have been moved from Phoenix, Ariz., to South San Francisco and are equipped to overhaul engines, major and minor aircraft components, accessories, instruments, and radio equipment. SWA can also handle modification, conversion and general maintenance of transport type aircraft.

Prior to reentry into a strict, Southwest had been in the aircraft overhaul and maintenance business for about ten years. At present, SWA's shops are handling its own equipment, but of several other organizations, and overhauling instruments under a contract with the Navy.

Air Parcels Pay Off

Domestic air parcel post, which was one year old Sept. 1, has achieved a popularity far beyond that originally anticipated.

Post Office officials report that as of Aug. 31, the domestic airlines had carried nearly 7 million parcels weighing 14 million pounds and producing about \$9 million revenue for the government. Early estimates had placed the portable



UNITED'S PORTABLE SCHOOLHOUSE

A mobile training unit with textbooks as its only material is being used by United Air Lines to keep mechanics and flight personnel proficient in DC-6 operations. The huge "textbook" consist of four cabinets containing working models and operating diagrams of DC-6's many mechanical systems. Each cabinet is six feet high, and their combined weight is 4500 lb. A roller track

leads them to training centers or other stations along United's routes. The panel illustrated above by the UAL instructor, who accompanies the mobile training unit, comes into the DC-6 generator control system. Two other workups at the rear control electronic control unit and radio transmitting system. Cabinet at right holds lighting and air conditioning system controls.

BONANZA OWNERS!

NEW PERFORMANCE NEW ECONOMY

The Flight Research AUL-10A-11C PROPELLER CONTROL provides greater control of the propeller allowing greatly improved short field operation, economical cruise control, and added engine protection.

The CAA approved APC kit, weighing 4 lbs can be installed in 3 hours and is priced at \$275.00.

Write for Bulletin A-9

FLIGHT RESEARCH
ENGINEERING CORP.
RICHMOND, VA.

Best-in-class volume at 47 million gallons. While representing less than 1 percent of the total pesos of air fuel burned by the Post Office, its demand will account for about 11 percent of the domestic air mail revenue accruing to the department.

Subsidy Control

Commerce Department suggests it take over granting of payments.

Commerce Department is bidding for control of government subsidy and payment policies on all forms of transportation.

Under the Hoover Commission's recommendation plan, Commerce Department would be required to work out over all rate patterns and balanced professional payments for land, sea, and air transportation.

The department would testify before the regulatory agencies—Interstate Commerce Commission, Maritime Commission, Civil Aeronautics Board—as to whether specific cases are for action on the overall program. The department's recommendations on rates, routes, schedules and other matters, however, would not be binding on the regulatory agencies.

Commercial Mail is a report to Sen. John McClellan (D., Ark.), chairman of the Senate Committee on Transportation and Commerce. The committee's report is a study of the general planning and programing function to the department is desirable," but pointed out "the failure of these functions probably would involve difficulties with the regulatory commissions so long as the granting of shipping subsidies is left to the hands of the Maritime Commission and the granting of airline subsidies is left to the Civil Aeronautics Board. . . . A more unified and coordinated program with respect to the granting of subsidies to the transportation services would result from transferring this function to the department.

"The regulatory commissions might in general follow policies which were in substantial accord with the program suggested by the (Commerce) department, but it is equally possible that they might adopt quite different and conflicting policies. As a result, the prospects of achieving a balanced promotional program are greatly diminished. . . . In fact, these might develop sharp contrasts of view between the departments supporting a balanced transportation program and the individual regulatory commissions adopting policies calculated to favor the particular area of transport over which they have jurisdiction."

President's Film—When, and 6, the President releases the Hoover Commission's Commerce Department report on air mail plan to Congress, it will be followed by the Transportation Committee. Unless vetoed by a constitutional majority of either house within 90 days, it would become effective.

Under the plan, Commerce would be divided into a transportation service and an industrial and commercial service. The transportation service would confer on licensees for standard marine, civil aviation, highway transportation, railroad transportation, and to transportation and weather. The civil aviation bureau would include the present activities of the Civil Aeronautics Administration, National Aeronautics Committee for Aeronautics, and the joint-division of air safety regulations now carried on by CAB, Interstate Commerce Commission, Maritime Commission, and CAB would continue an independent department regulatory bodies.

NACA Proposal—Commerce Department reported speaking today over NACA and requested "final authority" over air safety regulations as it report to McClellan. Under the Hoover plan, McClellan would have more authority over an air safety regulations promulgated by the civil aviation bureau and preconditions over the investigation of major aircraft accidents. The department adopted to

emphasizing NACA on the grounds that NACA is concentrating and will be for foreseeable future on safety development.

The department also proposed future aircraft activities—like transportation, industrial activities, domestic commerce, and scientific and industrial activities. The Hoover Commission showed two, the present number.

Lack of Funds Cuts CAB Use of Planes

A cut in its 1950 fiscal year appropriation has forced the Civil Aeronautics Board to ground its two test aircraft, a DC-3 and a four-engine B-24. Seven of 15 single-engine planes and by CAB safety inspection in the field also will be withdrawn.

The two transport planes, based at Washington, are used by CAB inspectors and staff on official missions, in accident investigations, promote Civil Aeronautics and related safety work. The seven single-engine planes taken from service have been stationed at various cities in the Board's eight regional districts.

Employment to Decline—By cutting its fiscal year 1950 funds in different offices, the Board hopes to avoid a personnel layoff. However, it is expected that because employment will decrease during the year because CAB won't have enough money to \$3 increases in pay.

CAB and its reduction in staff might slow up processing of pending traffic and air safety cases, economic enforcement actions, and route planning.

The Board currently employs about 877 people. Last year, its operating budget was \$1,617,000. This year, the President approved a \$1,850,000 budget, but the figure was increased \$199,000 by Congress.

TWA Looks Up

TWA expects 1950 to be the best year in the history of trans-Atlantic air travel.

C. S. Falkner, general sales manager, predicts the 1950 seasonal peak will be 15 percent higher than this year's record volume. He said full-year statistics are 18 to 20 percent higher than they were in 1949.

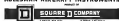
Hub Van Tassel—Much of the optimism over next year's business is based on apprehensions of heavy Holiday Year traffic to Rome. Four of the 30 new Constellation TWA has on order will be placed in service by late next spring to handle additional pilgrimage traffic. Winter scheduling rates only 11 per-



THE KOLLSMAN REPUTATION for accuracy and dependability in aircraft instruments has been earned through more than 20 years of consistently high performance. Recognition has come through the excellent work performance for Kollsman instruments by Army, Navy, commercial airlines and manufacturers of private craft.

Other products of Kollsman precision workshop include: special navigation devices—perceptual sensors—horoscopes—altitude warning indicators—electric mechanical controls—remote indicating and control systems—lighter test instruments—radio pressure controls—special-purpose altimeter clocks—modulators—varying instrument pick-up—interlocking units. The design, engineering and manufacturing skills of the Kollsman organization are available for any problem concerning aircraft instrumentation. Engineers are invited.

KOLLSMAN AIRCRAFT INSTRUMENTS



CLEAR COMMUNICATION ON VHF



VHF Communication and Navigation Equipment is a REVELATION

Get ultra-clear communication and the added reliability of exact route navigation by installing A.R.C. Type 11 B-type VHF Communication and Type 11B Omni Range Navigation Equipment. With the 11B tuned to the VHF radio station now covering the country, you're directly in line. You can receive weather broadcasts simultaneously with the navigation equipment—either over the 11B, taking the work out of navigation and providing line, trouble-free. The Type 11B provides an independent communication system that will be the only one providing navigation information. Communications for both single and multi-engine aircraft are made only by authorized service agencies.

All A.R.C. Airframe equipment is Type Certified by CAA. It is designed for reliability and performance and is made to price. Write for further details on some of your desired A.R.C. recommendations.

AIRCRAFT RADIO CORPORATION
DEPENDABLE ELECTRONIC EQUIPMENT SINCE 1926

TO PILOTS OF TWO-ENGINE AIRCRAFT, AND AIRCRAFT RADIO SYSTEM ENGINEERS

NEW FREEDOM OF CONTROL LESS PILOT FATIGUE

with the Type F-11 Isolation Amplifier
CAATC No. 184-1

When the A.R.C. Type 11B is installed in a two-engine aircraft, the pilot can receive weather broadcasts simultaneously with the navigation equipment—either over the 11B, taking the work out of navigation and providing line, trouble-free. The Type 11B provides an independent communication system that will be the only one providing navigation information. Communications for both single and multi-engine aircraft are made only by authorized service agencies.

AIRCRAFT RADIO CORPORATION
DEPENDABLE ELECTRONIC EQUIPMENT SINCE 1926

SCHMIDT'S NICKELBOARDS: This column seldom gets lost on its independent customers but Bob Schmidt, manager of Tucson Municipal Airport is strictly one. He disappears of our publicity lists July 18 for B M Dooley, manager of San Francisco Airport. Explains he: "I am a little confused over the play you give certain lettermen from San Francisco, colleagues though he may be, about what you so deviously term 'loosely accepted.' Our good title is not as great as that of the Doers of What Giant airport managers, and Californians being what they are, I doubt that our capricious reviewer will challenge the mark being made by the Doers of Adams." Schmidt, the first to reply my statements at airports, we do by choice to bring the first reply to bear about it as the enclosed note will indicate."

..

²Environmental Conditions: The engine shall not suffer any detrimental effects when exposed to the temperature range of minus 65 degrees Fahrenheit (minus 53.8 degrees C) to plus 160 degrees F (plus 71 degrees C). Consideration shall be given to the design of the engine for satisfactory operation during and after exposure to any combination of the following conditions in world wide operation: humidity, fungus, ammonia, rain, snow, dust, hail, soiling, fog, silt/dirt, salt-spines, or ozone, smoke, wood, sand and dust³

- R. H. W.

Trade Literature

"Catalog 17," a listing of tools and prices, including suggested uses of tools and technical information, available on request to Sorensen Tool Industries, Inc., Kenosha, Wis.

"Heat Treatment and Pickling of Austenitic Stainless Steels," a 56-page booklet, available on request to Austen Steel Corp., Middletown, Ohio.

"Data File," covering shoes, lock sets and stairways, available on request to Laminated Shoe Co., Inc., Glenbrook, Conn.

"Fixed Magnetic Clutches," a brochure describing the FM proportional torque controllers, available on request to Densam & Bayley, Inc., 765 Miami Ave., Buffalo 7, N. Y.

"Handbook and Maintenance Manual," an 88-page lapel-sized manual for operators of the Swift 125, available at no charge to Swift owners who send in their aircraft and NC serial numbers, \$6 to others. Send information to Sales Mgr., Texas Engineering and Manufacturing Co., Inc., P.O. Box 6191, Dallas, Tex.

"Bulletin No. 104," a 4-page brochure dealing with microphones and stands, available on request to Electro-Voice, Inc., Buchanan, Mich.

"Subject Headings for Aeronautical Engineering Libraries," compiled by Committee of the Engineering Aeronautics Section of the Science Technology Group, 216 pages, cloth \$4. Available from Special Libraries Assn., 31 East 10 St., New York 3, N. Y.

Bullets, dissolving Dyna-diamond compound shaver, is available on request to Industrial Products division Elgin National Watch Co., Aurora, Ill.

"The Tale of the Cats" an 8-page booklet on PBVs, available on request to the Babb Co., Inc., 444 Madison Ave., New York 17.

"Self-Checking Chart," a 12-page booklet outlining procedures to be followed in helping reduce fire loss and hazard, available on request to The Protective Co., 1938 South Western Ave., Chicago 5.

"New York University Engineering Research," a brochure aimed at companies, engineering and research organizations who are interested in projects and facilities of the College of Engineering available on request to Dr. Harold K. Work, Director Research Division, New York University College of Engineering, New York 23, N. Y.

AVIATION WEEK

SEPTEMBER 5, 1997

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世界华人经济论坛 服务 41

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EMPLOYMENT	
Employed—Total	42
Unemployed—Total	40
Unemployed—Seasonal	40
EDUCATIONAL	
Enrolled	40
TRAINING OPPORTUNITIES	
Openings	40
PLACES—(Self-employment)	
Openings	40-45
WANTED	
Openings	40-45

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gears up to 1 1/8" diameter.
up to 10" long.

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INFLATION WATCH, September 3, 1995

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The Beechcraft Bonanza's high payload, high speed, and low operating cost, combined with extra safety and greater comfort, make this Beechcraft a better buy! It's easy to enter or leave the 4-place Beechcraft Bonanza with its unique retractable step

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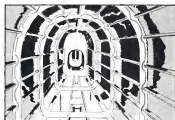


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Cruising speed, 170 mph
Range, 750 miles
Service Ceiling, 17,100 feet
Fuel economy, 9½ gal. per hour

Compare these comfort features

Exclusive retractable step
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Insulated, sound-proofed cabin
Quickly removable rear seat
Luggage compartment accessible two ways

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MODEL A35

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